

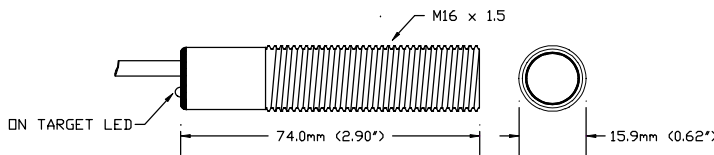
# IRS - Infrared Optical Sensor



## SPECIFICATIONS:

<b>Speed Range:</b>	1-1,000,000 RPM	<b>Power Requirement:</b>	3.0 - 15 Vdc @ 40mA
<b>Illumination:</b>	Infrared LED (not visible)	<b>On-Target Indicator:</b>	Green LED on end cap
<b>Operating Temp.:</b>	-40° to 180° F [-40° to 80° C]	<b>Target:</b>	Contrasting colors or beam interrupt
<b>Operating Range:</b>	up to 0.5 inch [12 mm] from target		
<b>Cable Length:</b>	IRS-P and IRS-W: 8 feet [2.4 m]		
<b>Connection:</b>	1/8 inch [3.5 mm] male stereo plug (IRS-P); Tinned wires (IRS-W)		
<b>Material:</b>	303 Stainless Steel supplied with two M16 Jam Nuts and Mounting Bracket		
<b>Dimensions:</b>	Threaded Tube 2.90 inches long x 0.62 inch diameter [M16 x 1.5 x 74 mm]		

CONNECTION DETAIL for Tinned Wires (IRS-W):			CONNECTION DETAIL for Plug (IRS-P):	
<b>Wire Color</b>	<b>Function</b>	<b>Connect to</b>		
Brown	Positive Power Excitation	(+V)		
Blue	Common	(Com)		
Black	Signal (+V to 0 Vdc Pulse)	(Sig)		
Shield	Housing Ground	(Com) or (Gnd)		



## OVERVIEW:

The IRS is supplied with an 8 foot [2.4 m] cable terminated with 4 tinned wires (IRS-W) or a 1/8 inch [3.5 mm] male stereo plug (IRS-P). An optional 25 foot [7.6 mm] extension cable EC-25P is available with a female socket for the plug on one end, and a 1/8 inch [3.5 mm] male stereo plug on the other. The Sensor is supplied with two M16 jam nuts and a 90° angle aluminum-mounting bracket. Power requirement is 3.0 - 15 Vdc at 40 mA. The output pulse will be negative going at the applied voltage (+V).

The IRS-P will work directly with all Monarch Handheld Tachometers and Nova-Strobe DA+/DB+ and PB Stroboscopes. A sensor power supply (SPS) with BNC output is available for those applications that require a separate power source for the sensor. The IRS-W will work with all Monarch panel instruments that accept pulse inputs (e.g. ACT Series).

## PREPARATION FOR USE:

In order for the sensor to work, you are required to have a contrasting color target on the rotating part. **NOTE: Standard Monarch reflective tape will not work.** The target can be any white surface that will reflect the infrared. A solution that works well on small high-speed shafts is wax crayon. Use black or white paint/ink to coat the shaft, 2/3 black and 1/3 white, so that as the shaft rotates the colors alternate in front of the sensor. White paper labels also work when wrapped fully around the shaft and then part of the label is blackened out with a marker. The sensor can also target off gear teeth, objects 0.039 inch [1 mm] diameter, slots, bolt heads and keys.

**CAUTION: Centrifugal Force at high speeds can be dangerous. Ensure all targets are adequately secured to shafts and always have operators protected by a sheet of Plexiglas at least 0.5 inch [12 mm] thick.**

**NOTE:** In order for the IRS to be fully CE compliant, the supplied ferrite must be attached around the plug/wire end of the cable.

## OPERATING INSTRUCTIONS:

The user must mount the IRS to obtain an accurate measurement. The ideal focal point of the sensor is 0.5 inch [12 mm], but this is dependent on the size and speed of the target. The sensor has a green LED On-Target Indicator that indicates when it is picking up a valid signal. The green LED will blink on and off at slow speeds and remain on steady at high speeds. Use this to properly place the sensor, as you cannot see the infrared emissions. **NOTE:** The sensor is sensitive to lighting, such as fluorescent lamps or sunlight. If the system appears to read a speed when the shaft is stationary, it may be necessary to shield it from ambient lighting.

Correct operation of the IRS can be checked at any time by aiming it at an original design fluorescent light and observing a 120 Hz or 100 Hz (two times your mains frequency) square wave on the signal output. If the sensor is being used with a tachometer, the tachometer will read 7200 RPM or 6000 RPM. The Sensor will not pick up newer "energy efficient" design fluorescent lights.

Monarch Instrument  
15 Columbia Drive, Amherst, NH 03031 USA  
Tel: (603) 883-3390  
www.monarchinstrument.com

**ACCESSORIES:**

EC-25P 25 foot [7.6 m] Extension Cable  
 ROS-NUT Set of two M16 Jam Nuts  
 ROS-MNT 90° Slotted Mounting Bracket

WIRE 3-wire shielded Sensor Cable, bulk lengths  
 SPS-IM Self Powered Sensor - Interface Module  
 PLUG 1/8 inch [3.5 mm] male stereo plug


**DECLARATION OF CONFORMITY**

As Manufacturer:

**Monarch Instrument**

Division of Monarch International Inc.  
 15 Columbia Drive, Amherst NH 03031 USA

declares under Monarch's sole responsibility that the product:

**Name: IRS - Infrared Sensor**  
**Models: IRS-W, IRS-P**

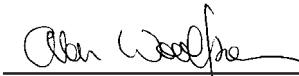
to which this declaration relates is in conformity with the following standards:

**EMC:** EN 61326:1998:  
 Class B, Radiated Emissions, 30MHz to 1GHz  
 EN61000-4-2:1995  
 EN61000-4-3:1996

and therefore conforms with the requirements of Council Directive 89/336/EEC relating to  
 electromagnetic compatibility when installed in accordance with the user guide.

References: Retlif Testing Laboratories (Report No. R-4283N)

24<sup>th</sup> June 2004  
 Manufacturer (Amherst,NH)



Alan Woolfson, VP Engineering (Authorized Signature)

**In order to comply with EU Directive 2002/96/EC on Waste Electrical and Electronic Equipment (WEEE):**

This product may contain material which could be hazardous to human health and the environment. DO NOT DISPOSE of this product as unsorted municipal waste. This product needs to be RECYCLED in accordance with local regulations, contact your local authorities for more information. This product may be returnable to your distributor for recycling - contact the distributor for details.

**Para obedecer con EU Directiva 2002/96/EC en el Desecho el Equipo Eléctrico y Electrónico (WEEE):**

Este producto puede contener la materia que podría ser la salud humana perjudicial para y el ambiente. NO se DESHAGA de este producto el desecho municipal como no clasificado. Estas necesidades del producto para SER RECICLADAS de acuerdo con las regulaciones locales, contactan su administración local para más información. Este producto puede ser retornable a su distribuidor para reciclar - contacta el distribuidor para detalles.

**Afin de respecter la directive européenne 2002/96/EC sur l'Equipement Electronique et les Déchets Electriques :**

Ce produit pourrait contenir des matières qui peuvent être dangereuses pour la santé de l'homme et de l'environnement. Ne pas jeter ce produit dans un container municipal inapproprié. Ce produit doit être recyclé en accord avec les arrêtés locaux; contacter les autorités locales pour plus de renseignements. Ce produit peut être renvoyé au distributeur pour recyclage - Contacter votre distributeur pour plus de détails.

**Um den Vorschriften der EU-Direktive 2002/96/EC bezüglich elektrischer und elektronischer Abfallstoffe (WEEE) nachzukommen:**

Dieses Produkt kann Materialien enthalten, welche gesundheitsgefährdend und umweltschädlich sind. Dieses Produkt DARF NICHT wie unsortierter Hausmuell entsorgt werden. Dieses Produkt muss gemaess den oertlichen Bestimmungen recycled werden, bitte kontaktieren Sie die lokalen Behoerden fuer weitere Informationen. Sie koennen dieses Produkt zum Recycling an Ihren Haendler zurueckgeben, bitte kontaktieren Sie den Haendler fuer weitere Details.